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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/676,330

09/30/2003

A. Daniel Feller

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BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BOULEVARD
SEVENTH FLOOR
LOS ANGELES, CA 90025-1030

EXAMINER

GEORGE, PATRICIA ANN

ART UNIT

PAPER NUMBER

1765

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

02/21/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/676,330	FELLER ET AL.	
	Examiner	Art Unit	
	Patricia A. George	1765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, and 8-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>12/12/06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Information Disclosure Statement***

The listing of references in the Search Report is not considered to be an information disclosure statement (IDS) complying with 37 CFR 1.98. 37 CFR 1.98(a)(2) requires a legible copy of: (1) each foreign patent; (2) each publication or that portion which caused it to be listed; (3) for each cited pending U.S. application, the application specification including claims, and any drawing of the application, or that portion of the application which caused it to be listed including any claims directed to that portion, unless the cited pending U.S. application is stored in the Image File Wrapper (IFW) system; and (4) all other information, or that portion which caused it to be listed. In addition, each IDS must include a list of all patents, publications, applications, or other information submitted for consideration by the Office (see 37 CFR 1.98(a)(1) and (b)), and MPEP § 609.04(a), subsection I. states, "the list ... must be submitted on a separate paper." Therefore, the references cited in the Search Report have not been considered. Applicant is advised that the date of submission of any item of information or any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the IDS, including all "statement" requirements of 37 CFR 1.97(e). See MPEP § 609.05(a).

The information disclosure statement filed 12/12/06 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because document no. 8, is missing a date. It has been placed in the application file, but the information regarding applicants' IDS, has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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Claim 1-6 and 8-10 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants amend independent claim 1 to include the limitation "wherein the abrasive comprises a concentration from about 26 to 30 percent", however, examiner finds no teaching of the end point of 26 as in applicants' amendment to independent claim 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-6 and 8-9 are rejected under 35 U.S.C. 103 as being unpatentable over Wang et al. (6,362,104) in view of Kato et al. (6,340,374).

Wang teaches slurry comprising: abrasives (as in claim 1) such as silica, or alumina (as in claim 8) (see col. 2, lines 23-37); pH of the slurry at 2-11, which encompasses applicants range of between about 4 to 8, as in claim 1 (see col. 10, lines

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26-27); a corrosion inhibitor, such as BTA (as in claims 2 and 3) (see col. 8, line 47); a buffer system comprising an organic acid such as acetic, citric, or oxalic acid (as in claim 4 and 5) (see col. 8, lines 55-58), a salt of the organic acid such as potassium acetate (as in claim 4 and 6) (see col. 2, lines 23-37); and a surfactant (as in claim 9) (see col. 9, lines 40-44). Wang teaches periodic acid (see col.4, line 51) at a rate of 0.1 to 20 wt % (col.5, line 14) which appears to overlap the claimed units of a molar concentration from about 0.004M to about 0.006M, as in claim 1.

Although the reference of Wang does not explicitly disclose the concentration of periodic acid in the claimed units of molarities, it would have been obvious to one of ordinary skill in the art at the time of invention was made, to make the necessary conversion of weight percent, as Wang, when determining the molar amount of periodic acid, as in applicants' limitation, because all ingredients of the slurry would be known and calculative. Further, it would have been obvious to one of ordinary skill in the art at the time of invention was made, to adjust the quantity of periodic acid, for desired results, as applicants limitation, when forming the slurry, as Wang, because the invention of Wang illustrates the concentration of periodic acid may be adjusted to achieve desired results, evidenced by the range of Wang.

Although Wang teaches applicants preferred range of abrasive (see applicant specification para 15) and rejection above, Wang does not teach applicants amended range of 26 to 30 percent abrasives.

Kato teaches slurries may have from 1 to 40% by weight silica and cerium oxide abrasive particles (see abstract).

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It would have been obvious to one of ordinary skill in the art at the time of invention was made, to modify the CMP slurry with abrasives, as Wang, to include the range of 1 to 40%, as Kato, because Kato teaches the grains increase the polishing rate, and the polishing rate is related to the device productivity therefor it is a highly desirable change (see background).

Claim Rejections - 35 USC § 103

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al., and Kato et al. as applied to claims 1-6 and 8-9 above, further in view of Sachan et al. (6,693,035).

Although Wang teaches surfactants, Wang does not teach the use of cetyl-trimethyl ammonium hydroxide.

Sachan teaches methods to control the removal rate of metal polishing (ab.), including a slurry comprising the known surfactant of cetyl-trimethyl ammonium hydroxide, as in claim 10.

It would have been obvious to one of ordinary skill in the art at the time of invention was made, to include cetyl-trimethyl ammonium hydroxide, as Sachan, when forming a slurry for metal polishing, because Sachan teaches it is a robust process capable of generating improved polishing results, which is a known process improvement.

Response to Arguments

Although applicant's argue, on page 4, that they do not agree that the periodic acid molarity of Wang is obvious. However, applicants' arguments are not persuasive in

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overcoming the rejection because such arguments do not include any reasoning or evidence to support the assertion that Wang does not disclose an overlapping molarity.

As to applicants' arguments toward the prior art not teaching the new limitation, please see new grounds for rejection above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia A. George whose telephone number is (571)272-5955. The examiner can normally be reached on weekdays between 7:00am and 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on (571)272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Patricia A George
Examiner
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02/07

NADINE G. NORTON
SUPERVISORY PATENT EXAMINER

